

THE IMPACT OF HORIZONTAL AND TEMPORAL RESOLUTION ON CONVECTION AND PRECIPITATION  
WITHIN HIGH-RESOLUTION GEOS-5

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ABSTRACT

Using a high-resolution non-hydrostatic version of GEOS-5 with the cubed-sphere finite-volume dynamical core, the impact of spatial and temporal resolution on cloud properties will be evaluated. There are indications from examining convective cluster development in high resolution GEOS-5 forecasts that the temporal resolution within the model may play as significant a role as horizontal resolution. Comparing modeled convective cloud clusters versus satellite observations of brightness temperature, we have found that improved temporal resolution in GEOS-5 accounts for a significant portion of the improvements in the statistical distribution of convective cloud clusters. Using satellite simulators in GEOS-5 we will compare the cloud optical properties of GEOS-5 at various spatial and temporal resolutions with those observed from MODIS. The potential impact of these results on tropical cyclone formation and intensity will be examined as well.